

CLAIMS

1. An interconnection structure including:
 - a positioning member having a main face and formed with a passage that opens at said main face,
 - a dielectric substrate having a first conductive element on a main face thereof,
 - a coaxial cable having an inner conductor, an outer conductor, and dielectric material between the inner conductor and the outer conductor, wherein the coaxial cable has an end segment that is fitted in the passage in the positioning member and the positioning member is so positioned relative to the dielectric substrate that an end face of the inner conductor is presented towards the first conductive element, and
 - a discrete resilient contact element interposed between the end face of the inner conductor and the first conductive element and in electrically-conductive pressure contact with both the inner conductor and the first conductive element.
2. An interconnection structure according to claim 1, wherein the positioning member is electrically conductive, the dielectric substrate has a second conductive element on said main face thereof, and the structure further includes a second discrete resilient contact element interposed between the main face of the positioning member and the second conductive element and in electrically conductive pressure contact with both the positioning member and the second conductive element.
3. An interconnection structure according to claim 1, wherein the coaxial cable is an air dielectric coaxial cable.
4. An interconnection structure including:
 - a positioning member having a main face and formed with a plurality of passages that open at said main face,
 - a dielectric substrate having a plurality of first conductive elements on a main face thereof, the main face of

the dielectric substrate being presented towards the main face of the positioning member,

a plurality of coaxial cables each having an inner conductor, an outer conductor, and dielectric material between the inner conductor and the outer conductor, wherein each coaxial cable has an end segment that is fitted in a passage in the positioning member and the inner conductors of the coaxial cables have respective end faces that are presented towards the first conductive elements respectively, and

a plurality of first discrete resilient contact elements interposed between the end faces of the inner conductors respectively and the first conductive elements respectively.

5. An interconnection structure according to claim 4, wherein each coaxial cable is an air dielectric coaxial cable and the inner conductor projects beyond the outer conductor and has a tip that is substantially flush with the main face of the positioning member.

6. An interconnection structure according to claim 4, comprising a retainer member located between the positioning member and the dielectric substrate, wherein the retainer member is formed with apertures and the contact elements are located in the apertures respectively.

7. An interconnection structure according to claim 4, wherein the first conductive elements on the main face of the dielectric substrate are distributed in a first rectangular array and the dielectric substrate has a plurality of second conductive elements on said main face thereof, distributed in a second rectangular array that is displaced from the first rectangular array, and the structure comprises a plurality of second discrete contact elements interposed between the main face of the positioning member and the second conductive elements respectively.

8. An interconnection structure according to claim 3, wherein the positioning member is electrically conductive, the dielectric substrate has a second conductive element on said main face thereof, and the structure further includes a second discrete resilient contact element interposed between the main face of the positioning member and the second conductive element and in electrically conductive pressure contact with both the positioning member and the second conductive element.

9. An interconnection structure including:

an electrically-conductive positioning member having a main face and formed with a plurality of passages that open at said main face, and

a plurality of coaxial cables each having an inner conductor, an outer conductor, and dielectric material between the inner conductor and the outer conductor, wherein the coaxial cables have respective end segments that are respectively fitted in the passages in the positioning member and the inner conductors are substantially flush with the main face of the positioning member.

10. An interconnection structure according to claim 9, wherein the coaxial cable is an air dielectric coaxial cable and the projecting portion of the inner conductor is spaced from the interior of the passage in the positioning member by an amount such that the characteristic impedance of the signal path is substantially uniform over the entire length of the coaxial cable.

11. An interconnection structure according to claim 9, wherein the coaxial cable is an air dielectric coaxial cable and includes an inner tube of dielectric material and a helical spacer separating the inner tube from the inner conductor, the inner conductor has a tip that projects beyond the inner tube, and the structure includes a dielectric centering disc that fits over the tip of the inner conductor.

12. An interconnection structure according to claim 9, comprising a conductive cap that fits over the tip of the inner conductor and is secured thereto for retaining the dielectric centering disc in position against the inner tube.

13. An interconnection structure according to claim 9, wherein the coaxial cable is an air dielectric coaxial cable and includes an inner tube of dielectric material and a helical spacer separating the inner tube from the inner conductor, and the structure further comprises a sleeve of conductive material that fits over the inner tube and is connected to the outer conductor, the tube being fitted in a passage in the positioning member.

14. An interconnection structure comprising:
a first positioning member having a main face and formed with a plurality of passages that open at said main face,
a first plurality of conductors having respective end segments that are respectively fitted in the passages in the first positioning member and are substantially flush with the main face of the first positioning member,
a second positioning member having a main face and formed with a plurality of passages that open at said main face,
a second plurality of conductors having respective end segments that are respectively fitted in the passages in the second positioning member and are substantially flush with the main face of the second positioning member,
a means for securing the first and second positioning members with their respective main faces in confronting relationship, and
a plurality of discrete resilient contact elements interposed between the main faces of the first and second positioning members and each in electrically conductive pressure contact with one conductor of the first plurality and one conductor of the second plurality.

15. An interconnection structure according to claim 14, comprising a retainer member located between the first and second positioning members, wherein the retainer member is formed with apertures and the contact elements are located in the apertures respectively.

16. An interconnection structure according to claim 14, wherein the conductors are inner conductors of respective coaxial cables each comprising said inner conductor, an outer conductor, and dielectric material between the inner and outer conductors.

17. An interconnection structure according to claim 16, wherein each coaxial cable is an air dielectric coaxial cable and the inner conductor projects beyond the outer conductor and has a tip that is substantially flush with the main face of the positioning member.